

What is claimed is:

1           1. A monitoring system comprising:  
2           a sensing subsystem having at least one sensing device  
3           for generating at least one data stream; and  
4           a processing subsystem for receiving and processing said  
5           data stream, said processing subsystem including a memory,  
6           said processing subsystem adapted to encrypt said at least one  
7           data stream to form an encrypted data stream corresponding to  
8           said at least one data stream, and being further adapted to  
9           write said encrypted data stream to said memory.

1           2. The monitoring system of claim 1, wherein said at  
2           least one data stream is a digital data bitstream.

1           3. The monitoring system of claim 1, wherein said  
2           processing subsystem is adapted to read said encrypted data  
3           from said memory, and to decrypt said encrypted data while  
4           reading said encrypted data.

1           4. The monitoring system of claim 1, wherein said at  
2           least one sensing device is a probe device adapted for partial  
3           insertion into food.

1 5. The monitoring system of claim 1, wherein said  
2 sensing subsystem includes a transmitter for transmitting said  
3 at least one data stream, and wherein said processing  
4 subsystem includes a receiver for receiving said at least one  
5 data stream.

1 6. The monitoring system of claim 1, wherein said at  
2 least one sensing device includes a temperature sensor and a  
3 battery, and wherein said at least one data stream includes  
4 data pertaining to said temperature sensor and data pertaining  
5 to a power level of said battery.

1 7. The monitoring system of claim 1, wherein said  
2 processing subsystem is adapted to at least one of either date  
3 stamp or time stamp said data stream.

1 8. A monitoring system for monitoring food located at a  
2 food serving or storage locations, said monitoring system  
3 comprising:

4 a sensing subsystem including at least one temperature  
5 sensing device for generating at least one data stream, said  
6 at least one temperature sensing device adapted to be  
7 partially disposed in food at said food serving or storage  
8 location; and

9 a processing subsystem for receiving and processing said  
 10 data stream, said processing subsystem including a memory,  
 11 said processing subsystem adapted to encrypt said at least one  
 12 data stream to form an encrypted data stream corresponding to  
 13 said at least one data stream, and being further adapted to  
 14 write said encrypted data stream to said memory.

1 9. The monitoring system of claim 8, wherein said at  
 2 least one data stream is a digital data bitstream.

1 10. The monitoring system of claim 8, wherein said  
 2 processing subsystem is adapted to read said encrypted data  
 3 from said memory, and to decrypt said encrypted data while  
 4 reading said encrypted data.

1 11. The monitoring system of claim 8, wherein said at  
 2 least one sensing device is a probe device adapted for partial  
 3 insertion into food.

1 12. The monitoring system of claim 8, wherein said at  
 2 least one sensing device is a probe device adapted for partial  
 3 insertion into food, said probe device including:

4 a housing;

5 an elongated pin section extending from said housing; and

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1. Introduction

2. Background

3. Methodology

4. Results

5. Conclusion

16. The monitoring system of claim 8, wherein said processing subsystem is adapted to at least one of either date stamp or time stamp said data stream.

17. The monitoring system of claim 8, wherein said processing subsystem includes a memory having an indexed hierarchical data storage structure, and wherein said processing subsystem is adapted to write said encrypted data stream to said indexed hierarchical data storage structure.

18. The monitoring system of claim 8, wherein said processing subsystem includes a memory having an indexed hierarchical data storage structure including at least one device index tree indexed by a device identifier and by date stamp data, and wherein said processing subsystem is adapted to write said encrypted data stream to said hierarchical data storage structure indexed by said device identifier and by said date stamp data.

19. The monitoring system of claim 18, wherein said processing subsystem is configured to analyze each received data stream to determine if said received data stream pertains to a sensing device newly added to said system, and wherein said processing system is further configured to establish a

6 new device index tree in said memory if said processing  
7 subsystem determined based on said analysis that said  
8 received data stream does pertain to a device newly added to  
9 said system.

11 20. The monitoring system of claim 8, wherein said  
12 sensing subsystem includes a sensing apparatus for sensing  
13 characteristics of food stored in a plurality of food serving  
14 or storage containers, said sensing apparatus comprising:

15 a central transmitter; and

16 a plurality of probes, each probe being adapted for  
17 partial disposal in one of said containers, said each of said  
18 probes being hard-wired to a central transmitter adapted to  
19 transmit data from each of said plurality of probes.

1 21. The monitoring system of claim 20, further  
2 comprising:

3 a member supporting at least one of said plurality of  
4 food storage containers; and

5 at least one conductor forming said hard-wire connection  
6 between said at least one of said probes and said transmitter,  
7 said conductor being secured to said member so that said  
8 conductor is minimally obtrusive to a food service agent  
9 serving food.

10 22. A monitoring system for monitoring food stored in at  
11 least one serving or storage container, said monitoring system  
12 comprising:

13 a sensing subsystem including at least one sensing device  
14 for generating at least one data stream, said at least one  
15 sensing device adapted to be partially disposed in food of  
16 said at least one temperature controlled serving container;  
17 and

18 a processing subsystem for receiving and processing said  
19 data stream.

20  
21 23. The system of claim 22, wherein said at least one  
22 sensing device includes a temperature sensor and a battery,  
23 and wherein said at least one data stream of said device  
24 includes data corresponding to said temperature sensor, and  
25 data corresponding to power level of said battery.

1 24. The system of claim 22, wherein said at least one  
2 sensing device includes a temperature sensor and a battery,  
3 wherein said at least one data stream of said device includes  
4 data corresponding to said temperature sensor, and data  
5 corresponding to power level of said battery, wherein said  
6 processing subsystem includes a display, and wherein said  
7 processing subsystem is adapted to output on said display

8 graphical indicia indicating both a temperature and a battery  
level associated with said at least one sensing device.

1 25. The system of claim 22, wherein said at least one  
2 sensing device includes a temperature sensor and a battery,  
3 wherein said at least one data stream of said device includes  
4 data corresponding to said temperature sensor, data  
5 corresponding to power level of said battery, and data  
6 corresponding to an identifier of said device.

1 26. The system of claim 22, wherein said at least one  
2 sensing device is provided by a probe having an elongated pin  
3 section and a temperature sensor disposed in said pin section.

1 27. The monitoring system of claim 22, wherein said  
2 processing subsystem is adapted to at least one of either date  
3 stamp or time stamp said data stream.

1 28. The monitoring system of claim 22, wherein said  
2 processing subsystem includes a memory having an indexed  
3 hierarchical data storage structure, and wherein said  
4 processing subsystem is adapted to write said encrypted data  
5 stream to said hierarchical data storage structure.



1 29. The monitoring system of claim 22, wherein said  
2 processing subsystem includes a memory having an indexed  
3 hierarchical data storage structure including at least one  
4 device index tree indexed by a device identifier and by date  
5 stamp data, and wherein said processing subsystem is adapted  
6 to write said encrypted data stream to said indexed  
7 hierarchical data storage structure indexed by said device  
8 identifier and by said date stamp data.

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1 30. The monitoring system of claim 29, wherein said  
2 processing subsystem is configured to analyze each received  
3 data stream to determine if said received data stream pertains  
4 to a sensing device newly added to said system, and wherein  
5 said processing system is further configured to establish a  
6 new device index tree in said memory if said processing  
7 subsystem determined based on said analysis that said  
8 received data stream does pertain to a device newly added to  
9 said system.

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31. The monitoring system of claim 22, wherein said  
2 processing subsystem includes a memory, said processing  
3 subsystem adapted to encrypt said at least one data stream to  
4 form an encrypted data stream, and being further adapted to  
5 write said encrypted data stream to said memory.

6 32. The monitoring system of claim 22, wherein said  
7 processing subsystem includes a receiver, a processor, and a  
8 memory, wherein said receiver is configured to encode said at  
9 least one data stream to create an encoded data stream, and  
10 wherein said processing subsystem is further adapted to decode  
11 said encoded data stream.

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1 33. The monitoring system of claim 31, wherein said  
2 processing subsystem includes a receiver, a processor, and a  
3 memory, wherein said receiver is configured to encode said at  
4 least one data stream to create an encoded data stream, and  
5 wherein said processing subsystem is further adapted to decode  
6 said encoded data stream.

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2 34. The monitoring subsystem of claim 22, wherein said  
3 processing subsystem includes a display and a memory, wherein  
4 said processing system is adapted to output on said display  
5 graphical indicia indicating each of said sensing devices  
which has been connected to said system.

1 35. The monitoring subsystem of claim 22, wherein said  
2 processing subsystem includes a display and a memory, wherein  
3 said processing system is adapted to output on said display  
4 graphical indicia indicating each of said sensing devices  
5 which is currently logging data.

1 36. The monitoring subsystem of claim 22, wherein said  
2 processing subsystem includes a display and a memory, wherein  
3 said processing system is adapted to execute a polling routine  
4 wherein said processing subsystem analyzes the content of data  
5 in said memory to determine the identity of each sensing  
6 device included in said system, and to determine which of said  
7 sensing devices are currently logging data, wherein said  
8 processing subsystem is adapted to output on said display  
9 graphical indicia responsive to said polling routine  
10 indicating each of said sensing devices which has been  
11 connected to said system, and to further output on said  
12 display a logging icon for each device which is currently  
13 logging data.

1 37. The monitoring system of claim 22, wherein said  
2 sensing subsystem includes a sensing apparatus for sensing  
3 characteristics of food stored in a plurality of food serving  
4 or storage containers, said sensing apparatus comprising:

5 a central transmitter; and

6 a plurality of probes, each probe being adapted for  
7 partial disposal in one of said containers, said each of said  
8 probes being hard-wired to a central transmitter adapted to  
9 transmit data from each of said plurality of probes.

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1 38. The monitoring system of claim 37, further  
2 comprising:

3 a member supporting at least one of said plurality of  
4 food storage containers; and

5 at least one conductor forming said hard-wire connection  
6 between said at least one of said probes and said transmitter,  
7 said conductor being secured to said member so that said  
8 conductor is minimally obtrusive to a food service agent  
9 serving food.

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1 39. A sensing apparatus for sensing characteristics of  
2 food stored in a plurality of food serving or storage  
3 containers, said sensing apparatus comprising:

4 a central transmitter; and

5 a plurality of probes, each probe being adapted for  
6 partial disposal in one of said containers, said each of said  
7 probes being hard-wired to a central transmitter adapted to  
8 transmit data from each of said plurality of probes.

1 40. The sensing apparatus of claim 39 further  
2 comprising:

3 a member supporting at least one of said plurality of  
4 food storage containers; and

5 at least one conductor forming said hard-wire connection  
6 between said at least one of said probes and said transmitter,  
7 said conductor being secured to said member so that said  
8 conductor is minimally obtrusive to a food service agent  
9 serving food.

Sub  
A10  
ADD  
B1  
1 41. The sensing apparatus of claim 40, wherein said at  
2 least one conductor secured to said member includes a  
3 flattened conductor housing.

1 42. The apparatus of claim 39, further comprising a  
2 sensing element, wherein at least one of said probes includes  
3 an elongated pin section housing for disposal in a food  
4 product, said elongated pin section substantially completely  
5 encapsulating said sensing element.

add  
A10  
ADD  
B1